

Application of the On-site Inspection Geophysical Techniques for the Detection and Identification of Subsurface Features

A significant portion of CTBT permitted techniques for use during an on-site inspection are the geophysical techniques. While passive seismological monitoring for aftershocks can be utilized during all periods of an on-site inspection, other techniques like resonance seismometry, active seismic surveys, magnetic and gravitational field mapping, ground penetrating radar and electrical conductivity measurements can be applied only during the continuation and extension periods. The purpose of use of the geophysical techniques varies. Passive seismological monitoring allows to monitor aftershocks down to magnitude -2 and thus contributes to narrowing down the search area. Other techniques can contribute to the site characterization. Depth penetration of the techniques varies as well. Shallow techniques can help to identify man made artifacts. Deeper techniques can contribute to the identification and characterization of the potential place of treaty violation including through the detection of cavities. Examples of the application of the geophysical techniques will be presented. Selected results of the use of passive seismic monitoring during field tests and exercises will be shown. This includes data from use of geophysical techniques for shallow and deep targets applied during the Integrated Field Exercise 2014 in Jordan. The use of such techniques for other applications will be discussed.

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